



Original communication

Detainees in Amsterdam, a target population of the Public Mental Health System?



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ABSTRACT

The Forensic Medical Service of the Public Health Service offers health care to detainees in police cells in Amsterdam. This study describes the registered mental health, addiction and social problems and compares them to the self-reported problems among a sample of detainees. Registers of the Forensic Medical Service are related to information from registers of police detention episodes. A general assessment of substance use, mental health and social problems is obtained by interviewing a sample of 264 detainees. The Forensic Medical Service was contacted in 24% of the 17,321 detention episodes. In 14% of the episodes mental or substance related disorders were observed. Within the sample 59% scored positively on indicators of substance abuse or mental health problems, 35% had additional social problems (debts, unemployment, housing). This proportion increased with age. It is concluded that substance abuse and mental health problems combined with social problems are highly prevalent among detainees, especially among the older ones. This urges for a close cooperation between Public Mental Health Care and Forensic Medical Services.

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1. Introduction

People that are detained in prisons, jails or police cells of Western countries show more psychiatric illnesses e.g. psychotic disorders, severe depression and personality disorders, than the general population.^{1–3} Contrarily, clients known at the Public Mental Health Care System run a higher risk for police arrests compared to the general population.⁴ Moreover detainees who are homeless, and who suffer from substance use disorders and schizophrenia run the highest risk for re-incarceration.⁵

The Public Health Service (PHS) in Amsterdam is responsible for both forensic medical services (FMS) and the coordination of Public Mental Health Care (PMHC). The FMS ensures the health and safety of people detained in police cells. Care is provided at police stations and at the Police Service cell blocks.

The PMHC provides care and support to individuals or families with severe and complex psychosocial problems who are characterized either by not actively seeking help for their psychiatric or

psychosocial problems, or by not having their health needs met by regular health care services.⁶ The majority of the patients of the PMHC is signalled by the police or (via hotlines) by citizens who worry about, or experience nuisance from their neighbours.⁷

Psychiatric and addiction treatment after detainment can reduce the risk of re-incarceration.⁵ Likewise, frequency of police contact may even be considered as a performance indicator of the Public Mental Health System.⁸ The ability to reduce criminality is one of the reasons that the benefits of treatment modalities such as heroin co-prescription exceed the costs of it.⁹

This study describes registration and interview data among detainees. Previously published articles based on these data focus on the physical health issues and general lifestyle characteristics of the sample and mental health.^{10,3} This study aims to identify the PMHC population among detainees, defined as those with a combination of mental disorders, social problems and unmet care. The prevalence of detainees with mental health and addiction problems is expected to be higher among the older arrestees. Therefore special attention is given to the age association. Furthermore, by comparing the interview data, registrations of the Forensic Medical Service and information of the total population of arrestees of the police services we will discuss the coverage of these problems in the daily practice of forensic nurses and physicians.

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2. Methods

The study is based on four sources of information:

- (1) Registration of the Police Amsterdam Amstelland on the number of individuals, episodes and number of days of police custody from July 2008 to June 2009,
- (2) Registration of the Forensic Medicine Department of the Amsterdam PHS providing on-site health care to police detainees held in within cell blocks of the Police Service Amsterdam-Amstelland during July 2008 to June 2009,
- (3) Interview data collected among police detainees held within cell blocks of the Police Service Amsterdam-Amstelland from March to June 2009.
- (4) Registers from the outpatient Public Mental Health services of the PHS.

2.1. Police registration

Data of the number of individuals, episodes and total number of days spent in police custody at one of the three cell blocks in Amsterdam were extracted from Amsterdam-Amstelland Police department registers. The Police department provided the researchers with aggregated data based on gender and five years age categories. In Amsterdam, there are three cell blocks with a total capacity of 170 cells especially equipped for overnight stays (maximum stay: 6 days). A total number of 11,638 individuals were detained for 17,321 episodes and spent 25,605 nights during the study period. On an average night, 70 individuals are detained in one of the three cell blocks.

2.2. Electronic registration forensic medicine department

The FMS of the Amsterdam PHS consists of physicians and nurses employed by the Forensic Medicine Department. All consultations are registered electronically. Detainees health problems are coded according to the International Classification for Primary Care (ICPC) by the care providers. Prescriptions were retrospectively coded for the purpose of this study using the Anatomical Therapeutic Chemical (ATC) classification. Health problems or prescriptions referring to alcohol or drug addiction (i.e. methadone prescription), psychopathology (prescriptions of psychopharmacological drugs) were selected. In total 7922 contacts with 3232 individuals during 4224 episodes have been registered. In this study the number of episodes is used both as a nominator and denominator to assess the coverage of the forensic medical services.

2.3. Registration outpatient psychiatric services of the Public Health Service

The registration of the outpatient psychiatric health service of the PHS Amsterdam (*in Dutch: Vangnet*) between June 30th 2004 and June 30th 2009 was used as an indicator of identified PMHC problems among the detainees that were also contacted by the FMS.

2.4. Interview sample

Detainees who were held in custody between March and June 2009 at one of three cell blocks in Amsterdam were invited to participate in an anonymous, structured questionnaire survey ($n = 402$). The interviews (average duration of 20 min) were conducted by specially trained interviewers. In total, 264 interviews

were completed (response rate 67%). Ninety-nine detainees refused to participate, 30 detainees suffered from severe language problems, 4 were willing to participate but were transferred/interrogated at the moment the interview was scheduled, 4 times the reasons for non-response were not recorded, and in one case, the detainee could not be interviewed in the interest of the police investigation. Age and gender distribution did not significantly differ between non responders and responders. Both groups predominantly consisted of males (93% and 92%), and had an average age of 32.9 and 32.4, respectively.

Apart from demographic variables and ethnicity the questionnaire contained issues of psychopathology, smoking, the use of alcohol and drugs, income and housing situation and physical health.

The “brief jail mental health screen” (BJMHS) is used as an indicator of the mental health status of the detainees.^{11,12} The BJMHS consists of eight yes-or-no questions. Section 1 includes six items about mental health symptoms. Section 2 comprises two items, one about current use of psychotropic medications and one about previous hospitalizations. The BJMHS is considered positive if at least two items from the first section or one item from the second.³

In this paper alcohol and drug use is dichotomised, using a higher threshold for the more widely used substances such as alcohol (>3 units a day, or >5 at least once a week) and cannabis (daily use) and last month prevalence of cocaine and opiates.

Three types of social problems are distinguished; problems with housing, financial problems and unemployment. Housing problems are defined as sleeping rough or residing in specific housing facilities for the homeless. Respondents that indicated having debts are considered to have financial problems and those being unemployed or who were on welfare are considered to have problems with employment. For each subject available care and perceived willingness to receive care was assessed.

2.5. Statistical analysis

Descriptive statistics (Chi-square) are used. As two different registration systems are used and only aggregated data of the total number of detainees were available Chi square was conducted with weighted aggregated data. SPSS-19 for windows was used.

3. Results

3.1. FMS registers

Table 1 shows the combined data of number of police detainment episodes and contact with FMS specified by age and gender. From 1st of July 2008 to 30th of June 2009, 17,321 episodes of police custody were registered at the police services Amsterdam Amstelland. In 4224 (24%) of these episodes, a contact with the forensic medical services (either physician or nurse) was registered. In 14% of the total number of episodes, a diagnosis or intervention associated with addiction or psychopathology was registered. This was more than half (57%) of the episodes.

The proportion of episodes with FMS increased with the age of the detainee and varied from 13% among the youngest (<25 years) to 37% among the oldest age category (>45 years). Furthermore, the proportion of problems related to addiction or psychopathology increased with age. Within 4% of the episodes of detainees younger than 25 year, a contact related to a mental health or addiction problem was observed. Among episodes of detainees of 45 and older, this was 23%. When considering only those episodes with a registered contact with forensic medical services, the percentage of services related to mental health and addiction increased from 30% to 63%.

Table 1

Coverage of the forensic medical services, addiction/mental problems among Amsterdam detainees by age and gender.

	Total		By age group								Gender			
			<25		25–34		35–44		45+		Male		Female	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Episodes of detention (n/row%)	17,321	100.0%	4596	26.5%	4749	27.4%	4243	24.5%	3733	21.6%	15,699	90.6%	1716	9.4%
Contacts forensic medical services (n/column% episodes)														
Total ^{a,b,c,d}	4224	24.4%	578	12.6%	996	21.0%	1247	29.4%	1376	36.9%	3628	23.1%	551	32.1%
- Drug related medical problems ^{a,b,c,d}	1424	8.2%	66	1.4%	261*	5.5%	509	12.0%	585*	15.7%	1203	7.7%	209	12.2%
Of which methadone prescription (heroin) ^{a,b,c,d}	1160	6.7%	49	1.1%	214	4.5%	413	9.7%	482	12.9%	977	6.2%	171	10.0%
- Alcohol related medical problems ^{a,b,c}	461	2.7%	26	0.6%	95	2.0%	174	4.1%	164	4.4%	431	2.7%	26	1.5%
Other mental problems (diagnoses or prescribed psychopharmics) ^{a,b,c,d}	801	4.6%	87	1.9%	239	5.0%	250	5.9%	219	5.9%	660	4.2%	133	7.8%
Total: mental problems or substance abuse/dependence ^{a,b,c}	2409	13.9%	176	3.8%	539	11.3%	817	19.3%	866	23.2%	2056	13.1%	329	19.2%

^a Chi² Linear by linear association age × subgroup vs. other detainees, $p < 0.05$.^b Chi² Linear by linear association age × subgroup vs. other forensic patients, $p < 0.05$.^c Pearson Chi² gender × subgroup vs. other detainees, $p < 0.05$.^d Pearson Chi² gender × subgroup vs. other forensic patients, $p < 0.05$.

FMS more often consulted female than male detainees (32% versus 23% of the episodes respectively). Among these episodes the proportion associated with addiction or psychopathology did not show a significant gender difference (57% and 60% respectively).

The majority (81%) of the 8.2% of the episodes in which drug dependence and abuse is observed is related to (a request for) methadone prescription. Alcohol abuse or dependence was registered in 2.7% of the detainees.

Previous contact with the outreaching Public Mental Health team of the PHS is another indicator PHMC related problems. One quarter (26%) of the detainees that had been in contact with the FMS during the study period had also been contacted by the outreaching Public Mental Health team of the MHS during the previous five years. Again, the percentage ranges from 10% among the youngest (<25 yrs) to 37% among oldest (45+ yrs) age-group. Moreover, a significant difference in contact rate was observed between female (31%) than male detainees (26%).

3.2. Interviews among detainees

In total, 267 interviews were included in the analysis. The average age of the respondents was 32 (sd (standard deviation): 11.9) and varied from 13 to 62 years. The majority of the respondents was male (92%), was of non-Western origin (68%) and had been incarcerated (ever) before (57%). Among those with a history of incarceration, the median cumulative period of incarceration was 9 months (IQR (inter quartile range): 2.5–33 months).

Table 2 shows the characteristics of the respondents by age and gender. Considering the use of opiates the interviews showed results comparable to those of the registers. Almost one in ten respondents used opiates last month (9%) and one in five used either cocaine or opiates (21%). Consistent with the trends shown in Table 1, the proportion of opiate or cocaine users increased with age from 4% among the youngest to 36% among the oldest age category.

Table 2

Substance use, mental and social problems among a sample of police detainees, by age and gender.

	Total		Age								Gender			
			<25		25–34		35–44		45+		Male		Female	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Total Interview, (row%, $n = 264$)	264	100.0%	82	31.1%	68	25.8%	60	22.7%	50	18.9%	244	92.4%	20	7.6%
Non-Western origin (coll%, $n = 256$) ^a	173	67.6%	67	82.7%	46	68.7%	27	46.6%	33	67.3%	164	68.9%	9	50.0%
History of incarceration (coll%, $n = 249$) ^a	141	56.6%	37	47.4%	35	51.5%	36	64.3%	33	70.2%	132	57.4%	9	47.4%
A1 Opiates (last month) ^a (coll%, $n = 257$)	24	9.4%	1	1.3%	5	7.4%	10	17.5%	8	16.0%	21	8.9%	3	15.8%
A2 Cocaine (last month) ^a (coll%, $n = 257$)	46	17.4%	2	2.5%	13	19.4%	15	25.4%	15	30.0%	41	17.3%	5	25.0%
A3 Opiates or cocaine (last month) (coll%, $n = 257$) ^a	54	21.0%	3	3.8%	15	22.4%	17	28.8%	18	36.0%	48	20.3%	6	30.0%
A4 Alcohol ^b (coll%, $n = 248$) ^a	51	20.6%	8	10.3%	13	19.7%	13	22.8%	16	28.0%	47	20.4%	4	22.2%
A5 Cannabis (daily use) (coll%, $n = 258$)	61	23.6%	25	32.1%	14	20.6%	12	20.3%	9	18.0%	59	24.8%	2	10.0%
A6 Alcohol or drugs Total (coll%, $n = 248$) ^a	124	50.0%	30	38.0%	29	43.3%	29	50.9%	34	72.3%	104	44.0%	6	32.0%
A7 Psychopathology ^{a,c} (coll%, $n = 248$)	97	39.1%	21	26.6%	34	51.5%	19	33.9%	21	47.7%	86	37.6%	11	57.9%
B1 Housing (no or homeless services) ^a (coll%, $n = 257$)	42	16.3%	7	8.6%	11	16.4%	10	13.3%	14	30.6%	39	16.4%	4	20.0%
B2 Financial problems ^a (coll%, $n = 239$)	49	18.6%	8	11.0%	15	20.5%	14	21.1%	12	20.5%	45	20.5%	4	21.1%
B3 Unemployment/welfare ^a (coll%, $n = 256$)	133	50.4%	21	25.9%	44	65.7%	34	56.7%	33	70.2%	121	51.3%	12	60.0%
A: substance use or psychopathology ^a (coll%, $n = 248$)	120	48.4%	29	37.2%	28	42.4%	29	50.9%	33	71.7%	114	49.6%	6	33.3%
B: social problems ^a (coll%, $n = 255$)	154	59.5%	28	34.6%	47	71.2%	37	61.7%	39	81.3%	141	59.0%	13	65.0%
Either A or B (coll%, $n = 248$) ^a	180	72.6%	42	53.8%	55	83.3%	40	70.2%	42	91.3%	168	73.0%	12	66.7%
Both A and B (PMHC population) (coll%, $n = 248$) ^a	87	35.1%	14	17.9%	21	31.8%	23	40.4%	28	60.9%	82	36.6%	5	27.8%

^a $P < 0.05$ Chi-sq linear by linear association with age.^b Average > 3 standard units daily, or at least once a week more than 5 standard units.^c Positive score on brief jail mental health screen.

Based on the questionnaire, we considered 21% of the sample as excessive alcohol users. This proportion also increased with age from 10% within the youngest age group to 33% among the oldest.

Except for cannabis all indicators of mental health, use of alcohol and drugs and social problems in the domains of housing, finances and employment increased with age. No significant differences were observed between males and females. Especially young (<25 yrs) detainees use cannabis, last month prevalence cannabis use is 49% last month, and 29% is a daily user.

Social problems are higher among the population of 25 years and older. Concerning the housing situation among the respondents 16% live on the street or depend on homeless services. Another 27% does not have a stable place to live. They reside temporarily with family or friends.

One third (35%, $n = 87$) of the detainees scored positively on both indicators of mental health or alcohol or drug abuse and social problems. This percentage ranged from 18% in the youngest to 61% within the oldest age category.

Table 3 focuses on these 87 detainees and shows the coverage of treatment and care and the willingness to receive treatment or support. The majority of the detainees indicated they don't need or refuse treatment or support on substance abuse related subjects such as alcohol, cannabis or single cocaine use (without opiate). The attitude towards treatment of addiction problems was more positive among opiate users. Although only 22% received treatment, another (40%) would like to receive treatment or support for their addiction problems. Similarly, the 41% of the respondents that scored positively on the BJMHS were not currently in mental health treatment but would like to participate. A positive attitude towards support in relation to social domains such as housing or finances was observed. Of those with problems, the percentage indicating that they don't need or would refuse support was 23% and 26%, respectively. The percentage that refuses care or support on any domain is only 17%.

4. Discussion

This paper describes substance abuse, mental health and social problems within the detainees in the police cells in Amsterdam. Information derived from registrations of the forensic physicians and nurses and the interviews conducted with the detainees shows an accumulation of addiction, mental health and social problems among 35% of the arrestees, especially among older detainees (45 yrs and older: 61%).

Table 3
Self reported met and unmet needs among respondents limited to those with indicators of substance use or mental health and social problems ($n = 87$).

Domain:	I'd like to have help		I don't want help		Already in care		Total% PMHC
	n	%	n	%	n	%	n (n = 87)
Housing	11	42%	6	23%	9	35%	26 32%
Finance/debts	14	52%	7	26%	6	22%	27 35%
Opiate use (last month)	9	50%	5	28%	4	22%	18 21%
Cocaine, without opiates (last month)	4	20%	14	70%	2	10%	20 24%
Cannabis (daily)	7	17%	32	76%	3	7%	42 49%
Alcohol (daily, >3 standard unit)	12	29%	29	71%	0	0%	41 47%
Mental health ^a	21	48%	18	41%	5	11%	44 54%
Both mental/addiction and social problems ^b	57	66%	15	17%	23	26%	87 100%

^a Positive screen on Brief jail mental health scale.

^b % indicate those that would like to have any care or support, refuses all care or support and receives some care or support, respectively.

A quarter (24%) of the episodes of incarceration detainees had a registered contact with the FMS and the majority (57%) of these contacts involve some diagnoses or treatment related to addiction or mental health disorders. Especially patients with opiate addiction seem to be well recognised. However, the percentage of medical consultations involving problems with cocaine, cannabis and alcohol (FMS data) is relatively low compared to the self reported prevalence of use of these substances (interview data). Probably, the demand for medical assistance is lower among users of these substances because they experience less physical withdrawal symptoms than opiate users.¹³

Both the FMS register and the interviews showed that the prevalence of addiction, mental health and social problems increased sharply with the age groups. According to the dual pathway model by Moffitt (1993) delinquents with mental health problems are more likely to continue their deviant criminal lifestyle.¹⁴ Drug users also tend to continue criminality during their career.¹⁵ Furthermore, continuation of this lifestyle may in turn lead to a gradual accumulation of social and mental health problems.

This study also supports the notion of the ageing population of problematic heroin and cocaine users.¹⁶ In Amsterdam, the incidence of heroin dependence peaked in the late seventies and early eighties and has been very low during the last decade.¹⁷ The ageing and declining population of heroine/cocaine users will probably lead to a reduction of addiction-related criminality over time.

Cannabis use is not uncommon in Amsterdam, 19% of the males 16–24 yrs has used cannabis during the last month.¹⁸ The prevalence of cannabis use among the young detainees, however, is much higher (49% last month, 29% daily). As the use of cannabis is decriminalised in Amsterdam it is unlikely that these youngsters are detained because of their cannabis use. Probably, frequent cannabis use is connected to the subculture of criminal youngsters. King (2010) suggests cannabis use is both a marker and a mediator of social problems such as the likelihood of dropping out of high school.¹⁹ During the last decade cannabis addiction is increasingly recognised in the Netherlands and treatment admissions doubled in the last decade.²⁰

In contrast, prevalence of excessive alcohol use is relatively low among young detainees. The majority of the young detainees (or their parents) are from non-Western, often Muslim origins, among which alcohol consumption is less common.²¹

The majority of the interview sample (56%) had a history of imprisonment. This proportion was higher among those with an accumulation of mental health problems or substance abuse and social problems (76%). Imprisonment is a risk factor for homelessness and vice versa.²² People may lose their stable housing while they are incarcerated, and those sleeping rough or use alcohol or drugs in public may be fined more often.

Arrestees seem to be more likely to accept help with practical issues (housing, finances). This is in line with the recent development of integration of social services and medical services to reach this population in Amsterdam.⁷

4.1. Limitations of the study

Although age and gender of the non-responders didn't differ from responders, other characteristics may still have differed from those who participated, especially those who couldn't participate because of a language barrier.

The study is conducted in cell blocks of the Amsterdam police which is a more dynamic environment than a prison, the detainees stay there for a very limited number of days. Some may have just been arrested or are about to be released. This may have influenced the response, the attention of the respondent and the time available to interview. Therefore the brief jail mental health screen has

been used instead of a more extensive psychiatric questionnaire which may have produced more detailed and more valid results on psychiatric disorders.

In this study, we attempt to define the population that should be targeted by the PMHC by combining indicators of substance abuse, psychopathology and social problems. The use of a recently developed Dutch version of the self sufficiency matrix, an assessment of functioning on 11 domains, could have been more appropriate to measure the severity of the problems and therefore more suitable to define the PMHC population.²³

5. Conclusion

The assessment of the characteristics of the detainees provides valuable information (other than data of health services or population surveys) about the risk groups eligible for PMHC. The data indicate that detainees show high levels of drug abuse, homelessness and psychopathology and have limited contact with health services. We conclude that the target population of the FMS and PMHC shows a considerable overlap.

In the first place, forensic physicians or nurses are responsible for the health care and safety of the detainees during their period of detainment. However, considering the population they serve, they are also a potential liaison for those patients that are not reached by the PMHC.

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Conflicts of interest

None of the authors has any conflicts of interest.

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